

# SEQUENCE LISTING

<110> Cao, Xuemei  
Zybarth, Gabriele M.

<120> ATTENUATED FORMS OF BOVINE VIRAL DIARRHEA VIRUS

<130> PC11050A

<140>

<141>

<160> 12

<170> PatentIn Ver. 2.1

<210> 1

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:(GZ51(+)

<400> 1

cggaccggta tgcagatctt cgtgaagacc ctgac

35

<210> 2

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:GZ52(-)

<400> 2

cacggcaggc ccaccacccc tcagacggag gaccag

36

<210> 3

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:GZ53(+)

<400> 3  
ctgaggggtg gtgggcctgc cgtgtgtaag aag 33

<210> 4  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:GZ54(-)

<400> 4  
ccaagatcct cccctttcat tacctcg 27

<210> 5  
<211> 6  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:GZ00( )

<400> 5  
accggt 6

<210> 6  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:GZ68(+)

<400> 6  
ggaataaagg tctcgagatg ccac 24

<210> 7  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:GZ66(-)

<400> 7  
ctttcgtgtc tgaaccaccc ctcagacgga ggacc 35

<210> 8  
<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:GZ67(+)

<400> 8  
ccgtctgagg ggtggttcag acacgaaaga agagggag 38

<210> 9  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:SEQ24(-)

<400> 9  
gccttgccta tgagggaatg g 21

<210> 10  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:NADLC4(-)

<400> 10  
gctattattg cccacgcaa caatgc 26

<210> 11  
<211> 12611  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:BVDdN6

<400> 11

gtatcagcaga	attagaaaag	gcactcgtat	acgtattggg	caattaaanaa	taataattag	60
gcctaggcgaa	caaatccctc	tcagcgaagg	ccgaaaagag	gtcgacgatc	cccttagtag	120
gtacgacata	atgagggggg	tacgaacagt	ggtagctctg	gttagctggc	taagccctga	180
gtacagggcta	gtcgtcagtg	gttcacgcgc	ttggaataaa	ggctctcgaga	tgccaccgtg	240
acgaggggcat	gcccaaaagca	catcttaacc	tgagcggggg	tgcccaccgt	aaaagcagtt	300
ttaaccgact	gttcagaata	agccctgata	gggtgtctga	gagggccact	tattgtctac	360
taaaaatctc	tgctgtacat	ggcacatgta	gtgtgatcac	aatgaacttt	gtatacaaac	420
atatacaacaa	aaaccctgag	gggttgaggga	acctgtttat	gatcaggcgag	gtgatccctt	480
attttggtgaa	agggggagcag	tcaccactca	atcgacgcta	aaagctccac	acaaagagtg	540
gtaagcgcgat	gttccaaccca	acctggcatc	cttaccaaaa	agaggtgact	gcagagctgg	600
taataagcaga	ggacctctatc	gcgggatcta	cctgaagcca	gggccacatt	tttaccagga	660
cttataaagg	cccgctcttc	acggggcccc	gctggcccggt	atgcagatct	ctgtgaagac	720
ctctgaccgc	aagaccatca	ccttggaggt	ggagcccgat	gacaccatcg	agcaactgaa	780
ggccaagatc	caggataaag	aaggcattcc	ccctgaccac	cagaggctca	tctttgccgg	840
caagcagctg	gaagatggcc	gcactctttc	tgattacaac	atccagaaag	agctgacccct	900
ccactctgtc	ctccgtctga	gtgggtgttc	agaccacaaa	gaagagggag	caatacaaaa	960
gaaaaccacag	aaaccgccaca	gactagaaag	ggggaaaaatg	aaaaatgtgc	ccaagaatc	1020
tcgaaaagac	agcaaaaacta	aaacctccga	tgtcataacta	ctgggtggaa	gagtcaataa	1080
ccagggttag	aagaagggaa	aaaaccagac	taaaaccact	caggcagctg	tgatcataca	1140
caaaaaacaaa	cctcaggaat	cacgcaagaa	actggaaaaa	gcattgtttg	cgtgggcaat	1200
ataatgctata	tttgtgttct	aagtatacaat	gggaaaaaac	atgacacagt	ggaacctaca	1260
agataagtcg	acggaaggga	gaacacggcc	aatgttccaa	atggcgtgtga	atagaagttt	1320
acatggaatc	tgccacagaga	aaatctgtac	tgccgtccct	tcccatctag	ccaccgatat	1380
agaaactaaa	acaattctatg	gtatgtatga	tgcgaagtga	agaagccaat	acacgtgttg	1440
cagactctaa	gcyctatagt	ggaaacagca	tggttggtgc	aactggtaca	atattgaac	1500
ctggattcta	gtcatgaata	gaacccaagc	caatctcact	gaggggacac	taaacaggga	1560
gtgcgcagct	acttgtaggt	atgataggcc	tagtgactta	aacgtggtaa	ccaacagtag	1620
agatagcccc	acacccttaa	caggttgcga	gaagggaag	aactcttcct	ttcagggcat	1680
attgatcgcc	ggcccccgca	accttgaatt	agctgcaggt	gatgtattat	tcaaagaaca	1740
ctaacgcatt	agtatgttcc	aggataacta	tctttacctt	gttgacgggt	tgaccacctc	1800
ttagaagggt	gcagacagta	gaaccgtctac	atgtacaacc	ttggttaggta	agcagctctg	1860
gatactagga	aaaaagttgg	aaaacagag	taagcagctg	tttgagcat	acgctgtctc	1920
cccttaactg	catgtcgatc	gcaaaatttg	ctacatatgg	tatacaaaaa	attgcacccc	1980
tgctctgctt	cccaagaaca	caaaaattgt	cgccctgggt	aaatttgaca	ccaatcgca	2040
ggacgcgaga	tattacatga	gtaggggggt	caacttgcgt	aggtactatg	actttcttta	2100
gtggtgtcgt	ccgactctgc	accggaaata	gctagtgtaa	tgtacctaat	cctacatttt	2160
ttcatccccc	aaagtcacgt	tgtatgaatt	gattgtgata	agaccagatt	gaacctcaca	2220
gtggagctga	caacagctga	agataaccca	gggtcgctat	ggaactatgg	caaatatgta	2280
tgtataagac	caaatgtgtg	gccttatgag	accaactgtg	tgttggcatt	tgaagaggtg	2340
agccaggatg	tgaagttagt	gttaggggca	ctcagagatt	taacacgcgt	ttggaacact	2400
gcacaaccta	ctgctttttt	agtagtcctt	gttaagatat	tcaggggcca	gatgttagac	2460
ggcattctct	ggctactatt	gataaacagg	gtacaagggc	acttggtagt	caaacctgaa	2520
ttctcgtgat	ccatagcaaa	ggacgcaaga	attgtgtca	tggggggggt	agggccttacc	2580
accacttggg	aggaataactc	acctggaatt	aagctgtgaag	acacaaatgt	ctatgctgtg	2640
tgcgaaagtg	ggaagttaat	gtacctccaa	agatgcaaga	gagaaaaccag	atatctcgca	2700
atcttgcata	caagagcctt	gcgcagcagt	gtgttatcca	aaaaactctt	tgatggggca	2760
aagcaaacag	atgtatgcga	ataaagcaac	acttttaagt	ttgactctct	cccatatgta	2820

gccaaaccca	tagtaagagg	gaagttcaat	acaacgctgc	tgaacggacc	ggccttcacg	2880
atggtatgcc	ccataggatg	gacagggact	gtaagctgta	cgctattcaa	tatggacacc	2940
ttagccacaa	ctgtggtagc	gacatataga	aggtctaaac	cattccctca	taggcaaggc	3000
tgtatcacc	aaaagaatct	gggggaggat	ctccataact	gcactccttg	aggaatattg	3060
acttgtgtgc	ctggagacca	actactatag	aaagggggct	ctattgaaac	ttgcaagtgg	3120
tgtggctatc	aatttaaaga	gagtgaggga	ctaccacact	accccatggy	caagtgtaaa	3180
ttggagaacg	agactgggta	caggctagta	gacagtacct	cttgcaatag	agaaggtgtg	3240
gccatagtag	cacaagggac	attaaagtgc	aagataggaa	aaacaactgt	acaggtcata	3300
gcatatgata	ccaaactcgg	acotatgcct	tgacagaccat	atgaactgac	atcaagtggag	3360
gggcctgtag	aaaagacagc	gtgtactttc	aactacacta	agacattaaa	aaataagtat	3420
tttgagccca	gagacagcta	ctttcagcaa	tacatgctaa	aaggagagta	tcaatactgg	3480
tttgacctgg	aggtgtactg	ccatcaccgg	gattacttcg	ctgagctcct	attagtgggtg	3540
gtagttagccc	tcttgggtgg	cagatatgta	ctttggttac	tggttacata	catggcttta	3600
tcagaacaga	agggccttagg	gattcagtat	ggatcagggg	aagtgtgtgt	gatgggcaac	3660
ttgctaacc	atacaaatat	tgaagtgggt	acatacttct	tgtcgctgta	cctactgctg	3720
agggaggaga	gcgtaaaaga	gtgggtctta	ctcttatacc	acatcttagt	ggtacaccca	3780
atcaaatctg	taattgtgat	cttactgatg	attggggatg	tggttaaaggc	cgattcaggg	3840
ggcccaaggt	acttggggaa	aatagacctc	tgttttacaa	cagttagtact	aatcgctata	3900
ggtttaata	tagccaggcg	tgacccaact	atagtccac	tggttaaca	aatggcagca	3960
ctgagggtca	ctgaactgac	ccaccagcct	ggagtggaca	tcgctgtggc	gggcatgact	4020
ataaccctgc	tgcattgtag	ctatgtgaca	gattatttta	catgataaaa	gaatctgacg	4080
tgcatctca	gcttggatct	gggggtgtct	tgataagaag	cctaataata	ctaggtagaa	4140
tcgagatgcc	agaggttaact	atcccaaaact	ggagaccact	aacttttaata	ctattatat	4200
tgatctcaac	aaacaattgt	acgaggtgga	aggttgactg	gggtggccta	ttgtgcgaat	4260
gtgtgcctat	cttattgctg	gtcacacact	tgtggggcca	cttcttaacc	ctaatactga	4320
tcctgctcat	ctatgaattg	gttaaatatt	actatctgaa	aactgttagg	actgatatag	4380
aaagaagtgt	gctagggggg	atagactata	caagagtgtg	ctccatctac	gaactgtgatg	4440
agagtggaga	gggcgtatat	ctttttccat	caaggcagaa	agcacagggg	aatttttcta	4500
tactcttgcc	cctttatcaa	gcaacactga	taagttgcgt	cagcagtaaa	tggcagctaa	4560
tatacatgag	ttaacttaact	ttggacttta	tgtaactacat	gcacagaaaa	gttatgagaag	4620
agatctcagg	aggtaccaac	ataaatatcca	ggttagtggc	agcaactcata	gagctgaact	4680
gggtccatgga	agaagaggag	agcaaaaggct	taaagaagtt	ttatctatgt	tctggaaggt	4740
tgagaaacct	aataaataaa	cataaggtaa	ggaatgagac	cgtggcttct	tggtacgggg	4800
aggaggaaat	ctacggtatg	ccaaagatca	tgactataat	caaggccagt	acactgagta	4860
agagcaggca	ctgcataata	tgactgttat	gtgagggccg	agagtggaaa	gggtggcact	4920
gcccaaaatg	tggaacccat	gggaagccga	taacgtgtgg	gatgtcgcta	cagagttctg	4980
aagaaagaca	ctataaaaaga	atctttataa	gggaaggcaa	ctttgagggg	atgtgcagcc	5040
gatgcagggy	aaagcatagat	aggtttgaaa	tggaacggga	acctaaagat	gccagatact	5100
gtgctgctg	taataggctg	catcctgtg	aggaaggtga	cttttgggca	gagtgcagca	5160
tggtgggct	caaaatcacc	tactttgcgc	tgatggatgg	aaaggtgtat	gatatacag	5220
agtgggctg	atgccagcgt	gtgggaatct	ccccagatag	ccacagagtc	cctgtgcaca	5280
tctgatttgg	ttcaccggtg	cctttcaggc	aggaatacaa	tggttttgta	caataataccg	5340
ctagggggca	actattttctg	agaaacttgc	ccgtactggc	aactaaagta	aaaatgctca	5400
tggttaggcaa	ccttgaggaa	gaaatttgta	atctgggaaca	tcttgggtgt	atccataagg	5460
ggcctgcctg	gtgtaaagaag	atcacagagc	agcaaaaatg	ccacataat	atactggata	5520
aactaacccg	atttttcggg	atcatgccaa	gggggactac	acccagagcc	ccggtgaggt	5580
tcctcagcag	cttactaaaa	gtgaggaggg	gtctggagac	tggtcgggct	tacacaaccc	5640
aaggcgggat	aagttcagtc	gacctgttaa	ccgccggaaa	agatctactg	gtctgtgaca	5700

gcatgggacg aactagagtg gtttgccaaa gcaacaacag gttgaccgat gagacagagt 5760  
 atggcgctcaa gactgactca ggggtgccag acgggtgccat atgttatgtg ttaaatccag 5820  
 aggcgctttaa catatcagga tccaaagggg cagtcgctca cctccaaaag acaggtggag 5880  
 aatttcacgtg tgtcaccgca tcaggcacac cggctttctt cgacctaaaa aacttgaaa 5940  
 gatggtcagg ctgtgcctata tttgaagcct ccagcgggag ggtgggtggc agagtcaaa 6000  
 tagggaaaga tgaagagtct aaacctacaa tggaaatcga tggaaatccag accgtctcaa 6060  
 aaaacacacg agacctgacc gagatgggtca agaagataac cagcatgaac aggggagact 6120  
 tcaagcagat tactttggca acagggcagg caaaaccaca gaactcccaa aagcagttat 6180  
 agaggagata ggaagacaca agagagtatt agttcttata ccattaaggg cagcggcaga 6240  
 gtcagctctac cagtatatga gattgaaaca cccaagcatc tcttttaacc taaggatagg 6300  
 ggacatgaaa gaggggggaca tggcaaccgg gataacctat gcactacacg ggtacttctg 6360  
 ccaaatgcct caaccaaagc tcagagctgc tatggtagaa tactcataca tatctctaga 6420  
 tgaataccat tgtgccactc ctgaacaact ggcaattatc gggaagatcc acagattttc 6480  
 agagagtata aggggtgtcg ccatgactgc cagcccgaca gggtcggtga ccacaacagg 6540  
 tcaaaagcac ccaatagagg aattcatagc ccccgaggta atgaaagggg agtatcttgg 6600  
 tagtcagttc ctgatatacg cagggtttaa aataccagtg gatgagatga aaggcaatat 6660  
 gttggttttt gtaccaacga gaaacatggc agtagaggta gcaaaagaag taaaagctaa 6720  
 gggctataac tctggatact attacagtgg agaggatcca gccaatctga gagtgtgac 6780  
 atcacaaatc cctcatgtta tcgtgggtac aaatgctatt gaatcaggag tgacactacc 6840  
 agatttggac acgggttatag acacgggggt gaaatgtgaa aagaggggtga gggtatcatc 6900  
 aaagatgact tctctgtata caggccttaa gaggatggcc gtgacttggg gtagctaggc 6960  
 gcagcgtagg ggcagagtga gttagtgtaa acccgggagg tattatagga gccaggaaac 7020  
 agcaaacagg tcaaaaggact accactatga cctcttcag ccacaaagat acgggatga 7080  
 ggatgcagtc aacgtgacga aatcctttag ggagatgaat tacgatagga gcctatcaga 7140  
 ggaggacacg ctactaataa cccagctgga aatactaaat aatctactca tctcagaaga 7200  
 cttgcacgcc gctgttaaga acataatggc caggactgat caccagagcg caatccaact 7260  
 tgcatacaac agctatgaag tccagggtcc ggtcctattc ccaaaaaataa ggaattggaga 7320  
 agtcacagac acctacgaaa attactcgtt tctaaatgcc agaaagttag gggaggatgt 7380  
 gcccgtagt atctacgcta ctgaagatga ggatctggca gttgacctct tagggctaga 7440  
 ctggcctgat cctgggaaac agcaggtagt ggagactggt aaagactgga agcaagtga 7500  
 cgggtgtgct tcggctgaaa atgccctact agtggcttta tttgggtatg tgggttacca 7560  
 ggtctctctca aagaggcatg tccaatgat aacagacata tataccatcg aggaccagag 7620  
 actagaagac accaccacc tccagtatgc acccaacgcc ataaaaaccg atgggacaga 7680  
 gactgaactg aaagaactgg cgtcgggtga cgtggaaaaa atcatgggag ccatttcaga 7740  
 ttatgcagct gggggactgg agtttgttaa atcccaagca gaaaagataa aaacagctcc 7800  
 tttgtttaaa gaaaacgcga aagcgcgaaa agggtatgtc caaaaattca ttgaactatt 7860  
 aattgaaaat aaagaagaaa taatcagata tggtttgttg ggaacacaca cagcactata 7920  
 caaaaagcata gctgcaagac tggggcatga aacagcgttt gccactatg tgttaaatgt 7980  
 gctagctttt gagggggaat cagtgtcaga ccacgtcaag cagcgcgacg ttgatttagt 8040  
 ggtctattat gtgatgaata agccttctct cccaggtgac tccgagacac agcaagaagg 8100  
 gaggcgatc gtgcgaagcc tgttcatctc cgcactggca acctacacat acaaaacttg 8160  
 gaattaccac aatctctcta aagtgggtga acagccttg ctatccctcc ctatgctacc 8220  
 agcgcattaa aatgtttcac cccaacgcgg ctggagagcg tgggtgatact gagcaccacg 8280  
 atatataaaa catacctctc tataaggaaag gggaagagtg atggattgct ggggtacggg 8340  
 ataagtgag ccatgggaaat cctgtcacaa aaccagtat cagttagtat atctgtgatg 8400  
 tggggggtag gggcfaatcg tgcgcacaa gctattgagt ccagtgaaca gaaaaggacc 8460  
 ctacttatga aggtgtttgt aaagaacttc ttgattcagg ctgcaacaga tgagctggtta 8520  
 aaagaaaacc cagaaaaaat tataatggcc ttatttgaag cagtcacagc aattggttaac 8580

ccctgagag	taatatacca	cctgtatggg	gtttactaca	aaggttggga	ggccaaggaa	8640
ctatctgaga	ggacagcagg	cagaaactta	ttcacattga	taatgtttga	agccttcagg	8700
ttattaggga	tggactcacca	agggaaaata	atggaaacctg	ccggaaaatta	cattttggat	8760
ttgatatagc	gcctacacaa	gcaaatcaac	agagggtctga	agaaaatcgt	actgggggtg	8820
gccctctgac	cctttagtgt	tgactggacc	cctagtgcag	agaggatcag	attgccaaca	8880
gacaactatt	tgagggtaga	aaccaggtgc	ccatgtggct	atgagatgaa	agccttccaa	8940
aatgtagtgt	gcaaacctac	caaagtggag	gagagcgggc	ctttccctatg	tagaaacaga	9000
cctggtaggg	gaccagtcac	ctacagagtc	accaagtatt	acgatgacaa	cctcagagag	9060
ataaaaccag	tagcaaaagt	ggaaaggacag	gtagagcaat	actcaaaagg	ggtccacaga	9120
aaaattgact	acagttaaagg	aaaaatgctc	ttggccactg	acaagtggga	ggtggaacat	9180
ggtgtcataa	ccagggttagc	taagagatat	actggggctg	ggttcaatgg	tgcatactta	9240
ggtgacgagc	caaatcacgc	tgctctagt	gagagggaat	gtgcaactat	aacccaaaac	9300
acagtacagt	ttctaaaaat	gaagaagggg	tgctgcgttca	cctatgacct	gaccatctcc	9360
aattctgacca	ggctcatcga	actagtacac	aggaacaatc	ttgaagagaa	ggaaaatccc	9420
accgctacgc	tcaccacatg	gctagcttac	accttcgtga	atgaagacgt	agggactcata	9480
aaaccagtag	taggagagag	agtaatcccc	gacccctgtg	ttgatataca	tttacaaaca	9540
gaggtgcaag	tgacacgctc	agaggttggg	atcacataaa	ttggaaagga	aaacctgatg	9600
acaacggagc	tgacacgtgc	cttggaaaaa	ctagagcctg	acgcccaagg	caaccacaac	9660
tcggtgaaga	tcgggttgga	tgagggtaat	taccaggggc	ctggaataca	gacacataca	9720
ctaacagaga	aaatacacaa	cagggatcgc	aggcccttca	tcagtatctc	gggctcaagg	9780
aattccatat	caaatagcgc	aaagactgct	agaaataata	atctgataac	agcgtttagg	9840
cccagggaat	tacgagactt	gatggctgca	gggagcatgt	tagtagtagc	actgagggat	9900
gtcgaccctg	agctgtctga	aatggctgat	ttcaagggga	cttttttaga	tagggagggc	9960
ctggaggctc	taagctctcg	gcaacctaaa	cgaagcagg	gttccaaaga	agctgttagg	10020
aatttgatag	aacagaaaaa	agatgtggag	atccctaact	ggtttgcac	agatgacca	10080
gtatttctgg	aagttggcct	aaaaaatgat	aagtactact	tagtaggaga	tggtggagag	10140
ctaaaagatc	aagctaaaag	acttggggcc	acggatcaga	caagaattat	aaaggaggtta	10200
ggctcaagga	cgtatgccat	gaagctatct	agctggttcc	caaggcatca	aacaaacaga	10260
tgagtttaac	tcactgtgtt	gaggaaattgt	tgctacgggt	cccactcgca	actaagagca	10320
ataaagggca	catggcatca	gcttaccat	tggcacagg	taactgggag	ccctcggtt	10380
gcggggtgca	cctaggtaca	ataccagcca	gaagggtgaa	gatacaccca	tatgaagctt	10440
acctgaagtt	gaagatttcc	atagaagaag	aagagaagaa	acctagggtt	aaggatacag	10500
taataagaga	gcacaacaaa	tggtacttta	aaaaataaag	gtttccaaaga	aacctcaaca	10560
ccaagaaaaa	gctcaaccca	gggaaactat	ctgaacagtt	ggacaggggag	gggcgcaaga	10620
ggaactctca	caaccacag	atgtgttacta	taattgtcaa	tgacaggcata	aggtcgagga	10680
aattgccaat	agtgagggcc	caaacgcaga	ccaaaacctt	tcatgaggca	ataagagata	10740
agatagacaa	gagtgaaaac	cggcaaaatc	cagaattgca	caacaaattg	ttggagattt	10800
tccacacgat	agcccaaccc	acctgaaac	acacctacgc	tgaggtgagc	tgggagcaac	10860
ttgagtcggg	ggtataataga	aaggggggag	caggcttcct	ggagaaggaag	aacatcggag	10920
aagtattgga	ttcagaaaaa	caactggtag	aacaattggt	cagggatctg	aaggccggga	10980
gaaagataaa	atattatgaa	actgcaatac	caaaaaatga	gaagagagat	gtcagtgtatg	11040
actggcaggc	aggggacatg	gtggttgaga	agaggccaag	agttatccaa	taccttgaa	11100
ccaagacaag	gctagccatc	actaagggtca	tgtataactg	ggtgaaacag	cagcccgttg	11160
tgattccagg	atatgaagga	aagacccctc	gtttcaacat	ctttgataaa	gtgagaagg	11220
aatgggactc	gttcaatgag	ccagtggccg	taagttttga	accacaagctc	tggggacatc	11280
aagtgactag	taaggatctg	caactattgt	gagaaatcca	gaaatattac	tataagaagg	11340
agtgggacaa	gttcattgac	accatcacgc	accatcatgac	agaagtacca	gttataacag	11400
cagatggtga	agtatataata	agaaatgggc	agagagggag	cggccagagc	gacacaagtg	11460

ctggcaacag	catgtttaaat	gtcctgacaa	tgatgtacgg	cttctgcgaa	agcaaggggg	11520
taccgtacaa	gagtttcaac	agggttgaaa	ggatccacgt	ctgtggggat	gatgtctctc	11580
taataactga	aaaagggtta	gggttgaat	ttgtcaacaa	agggatgcag	attgtctctc	11640
aagcaggcaa	acctcagaag	ataacggaag	gggaaaagat	gaaagttgcc	tatagatttg	11700
aggatataga	gtttctgttc	cataccceag	tccctgttag	gtggctcgac	aacaccagta	11760
gtcacatgct	cgggagagac	accgctgtga	tactatacaa	gattggcaaa	agattggatt	11820
caagtggaga	gaggggtacc	acagcatatg	aaaaagcggg	agcctcttag	ttcttgccta	11880
tgtattctcg	gaacccgctt	gttaggagga	tttgcctgtt	ggctcttttc	caacagccac	11940
acagcagccc	atcaaaaact	ggcaacttat	attacaaagg	tgtccaata	ggggctccata	12000
aagatgtaat	aggtcggatc	ctaagtgaac	tgaagagaac	agcctcttag	aaattggcaa	12060
atctaaacct	aagcctgttc	aggtttgggg	cttggactaa	gcacacaag	aaaagaataa	12120
ttcaggagct	tgttgccatt	gggaaagaaa	agggcaactg	ctagtttaag	cccgacagcg	12180
tgatattccag	caaaactggc	catcttatac	tacctgataa	aggtcttaca	tttacaaggaa	12240
agcattatga	gcaactgcag	cttgaataac	agacaaaccc	ggctatgggg	ttggagactga	12300
gagatacaag	ttaggtccca	tagtcaatct	gctgctgaga	agggtgaaaa	ttctgtctcat	12360
gacggccgct	ggcgtcagca	ctgtgacaaa	aagtgtatata	ttgtataata	attaatccat	12420
gtacatctgt	tatataaata	tagttgggac	cgctcacctc	aagaagacga	cacgcccacg	12480
gcgcacagct	aaacagtagt	gaagattatc	tacctcaaga	taacactaca	tttaatgcac	12540
acagcacttt	agctgtgatg	ggatcagccc	gacgtctata	gttgactatg	ggaagacctc	12600
taacagccc	c					12611

<210> 12

&lt;212&gt; DNA

<223> Description of Artificial Sequence:pBVDDn6

<400> 12





aggTTtaaatc	atagccaggc	gtgacccaac	tatagtgcc	ctggtaacaa	taattggcagc	3960
actgaggccct	actgaactga	cccaccagcc	tggagttgac	atcgctgtgg	cggttcagac	4020
tataacagga	ctgatgggta	gctatgtgac	agattatttt	agatataaaa	aattggttaca	4080
gtgcattctc	agcctgggat	ctgggggtgt	cttgataaga	agcctaata	acctaggtag	4140
aatcgagatg	ccagaggttaa	ctatcccaaa	ctggagacca	ctaactttaa	tactattata	4200
tttgatctca	acaacaattg	taacgaggtg	gaaggttgac	gtggctggcc	tattgttgca	4260
atgtgtgcct	atcttattgc	tggtcacaac	cttgtggggc	gaactcttaa	ccctaatact	4320
gatccctgac	acctatgaat	tggttaaatt	atactatctg	aaaactgtta	ggactgatat	4380
agaaagaagt	tggctagggg	ggatagacta	tacaagagtt	gactccatct	acgagttgga	4440
tgagagtggg	gagggcggtat	atctttttcc	atcaaggcag	aaagcacagg	ggaatttttc	4500
tataactctg	cccttatca	aagcaacact	gataagttgc	gtcagcagta	aatggcagct	4560
aatatcacatg	agttacttaa	ctttgggactt	tatgtactac	atgcacagga	aagttataga	4620
agagatctca	ggaggtacca	acataaatatc	caggttagtg	gcagcactca	tagagctgaa	4680
ctggctccatg	gaagaagagg	agagcaaaag	cttaaaagaag	ttttatctat	tgctctggaag	4740
gttgagagaac	ctaataatga	aacataaggt	aaggaatgag	acgctggcct	cttggttcagg	4800
ggaggaggaa	gtctacggta	tgccaaagat	catgactata	atcaaggcca	gtacactgag	4860
taagagcagg	cactgcataa	tatgcactgt	atgtgagggc	cgagagtggg	aaggtggcac	4920
ctgcccaaaa	tgtggacgcc	atgggaagcc	gataacgtgt	gggatgtcgc	gtgcagattt	4980
cgaagaaaga	cactataaaa	gaatctttat	aagggaaagg	aactttgagg	gtatgtgag	5040
ccgagtccag	ggaaagcata	ggaggtttga	aatggacccg	gaacctaa	gtgccagata	5100
ctgtgctgag	tgtataggcg	tgcatctcgc	tgaggaaagt	gaactttggg	gtggttcagg	5160
catgttgggc	ctcaaaaatca	cctactttgc	gctgatggat	ggaaaaggtgt	atgatatac	5220
agagtgggct	ggatgcaggc	gtgtgggaa	ctcccgagat	acccacagag	tcccttgta	5280
catctcattt	ggttccacg	tgcccttcag	gcaggaatac	aatggctctg	tacaataac	5340
cgctaggggg	caactatttc	tgagaaactt	gccgtactg	gcaactaa	taaaaatgct	5400
catggtaggc	aactctggag	aagaaattgg	taactctggaa	catcttgggt	ggatcctaa	5460
ggggcctgcc	gtgtgtgaac	agatcacaga	gcacgaaaaa	tgccacata	ataacttga	5520
taaaactaac	gcatttttcg	ggatcatgcc	aagggggact	acacccagag	ccccggtag	5580
gttccctacg	agcttactaa	aagtgaggag	gggtctggag	actggctggg	cttacacaca	5640
ccaaggcggg	ataagttcag	tcgacctatg	aaccgcggga	aaagatctac	tggtctgtga	5700
cagcatggga	cgaactagag	tggttttgca	aagcaacaac	aggttgaccg	atgagacaga	5760
gtatggcgct	aagactgact	caggggtgcc	agacggtgcc	agatgttat	tgttaaatcc	5820
agaggccggt	aacataatag	gatccaaaag	ggcagtcgtt	ccactccaaa	agacaggtgg	5880
agaattcacg	tgtgtcacgg	catcaggcac	accggtcttc	ttcgacctaa	aaaacttgaa	5940
aggatggta	ggcttgccata	tatttgaagc	ctccagcggg	aggggtggtg	gcagagtcac	6000
atgtagggag	atgaagaagt	ctaaacctac	aaaaataatg	agtggaatcc	agaccgtctc	6060
aaaaaacaca	gcagacctga	ccgagatggt	caagaagata	accagcatga	acaggggaga	6120
cttcaagcag	attactttgg	caacaggggc	aggcaaaaac	acagactccc	caaaagcagt	6180
tatagaggag	ataggaagac	acaagagagt	attagttctt	atacatttaa	ggggcagctg	6240
agagtcagtc	taccagtata	tgagattgaa	acacccaagc	atctctttta	acctaaaggt	6300
atgggacatg	aaagaggggg	acatggcaac	cgggataacc	tatgcatcat	acgggtactt	6360
cgtccaaatt	cctcaacca	agctcagagc	tgctatggta	gaatactcat	acataattctt	6420
agatgaatac	cattgtgcca	ctcctgaaca	actggcaatt	atcgggaaga	tccacagatt	6480
ctcagagagt	ataaggggtg	tcgcatatg	tgccagccca	gcaggggtcg	tgaccacaac	6540
aggtcaaaag	cacccaatag	aggaattcat	agcccccgag	gtaatgaaa	gggaggtatc	6600
tggtagttag	ttccttgata	tagcaggggt	aaaaatacca	gtggatgaga	tgaaaggcaa	6660
tatgttggtt	ttgttaccac	cgagaaacat	ggcagtagag	gtagcaaa	agctaaaaag	6720
taagggctat	aactctggat	actattacag	tggaaggagt	ccagccaatc	tgagagtgtg	6780

gacatcacaa tccccctatg taatcgtggc tacaaatgct attgaatcag gagtgacact 6840  
 accagatttg gacacgggta tagacacggg gttgaaatgt gaaaagaggg tgaggggtatc 6900  
 atcaagatac ccctctatcg taacaggcct taaggagatg tccgtgagca 6960  
 ggcgcagcgt aggggcagag taggttagagt gaaacccggg aggtattata ggagccagga 7020  
 aacagcaaca ggggtcaagg actaccacta tgacctcttg caggcacaaa gatacgggat 7080  
 ttgaggtagg atcaacgtga cgaatccctt tagggagatg aattacgatt tgggctctata 7140  
 cgaggaggac agcctactaa taacccagct ggaataacta aataatctac tcactctcaga 7200  
 agacttgcca gccgctgtta agaacaataa ggccaggact gatcacccag agccaatcca 7260  
 acttgcatca aacagctatg aagtcagggt cccggtccta ttcccaaaaa taaggaaatgg 7320  
 agaagtacac gacacctacg aaaattactc gtttctaaat gccagaaagt taggggagga 7380  
 tgtgccctgt tatatctacg ctactgaaga tgaggatctg gcagttgacc tcttagggct 7440  
 agactggcct gatcctggga accagcagggt agtggagact ggtaaacgac tgaagcaagt 7500  
 gaccgggttg tctcggctgt aaaatgccct actagtggct ttatttgggt atgtgggtta 7560  
 ccaggctctc tcaaggaggc atgtcccaat gatacacgac atatatacca tcgaggacca 7620  
 gagactagaa gacacacccc acctccagta tgcacccaac gccataaaaa ccgattggagc 7680  
 agagactgaa ctgaaagaac tggcgtcggg tgacgtggaa aaaatcatgg gagccatttc 7740  
 agattatgca gctggggggc tggagtttgt taaatcccaa gcagaaaaga taaaaacagc 7800  
 tcctttgttt aaagaaaaa cagaagccgc aaaagggtat gttcctaact taacttactc 7860  
 attaattgaa aataaagaag aaataatcag atatgggttg tggggaacac acacagcact 7920  
 atacaaaagc atagctgcaa gactggggca tgaacacagc ttgcccacac tagtgttaaa 7980  
 gtgcttagct tttgggaggg aatcagtgct agaccacgct cagtttgattt 8040  
 agtggctctat tatgtgatga ataagccttc ctcccgaggt gactccgaga cacagcaaga 8100  
 agggagggca ttcgtgcgaa gctgttctat ctccgactgt gcaacctaca catacaaaa 8160  
 ttggaattct cacaattctc ctaaaagtgt ggaacccagc ctgacctacc tccctatgc 8220  
 taccagcgca ttaaaaaatg tcccccaac gcggctggag agcgtgtgta tactgagcac 8280  
 cagcataatc aaaaacatcc ttctataaag gaaggggaag agtgatggat tgctgggtac 8340  
 ggggataagt gcagccatgt aaatcctgtc acaaaacca gtatcggtag gtatatctgt 8400  
 gatgttgggg gtagggggcaa tcgctgogca caacgctatt gagtccagtg aacagaaaag 8460  
 gacccctact atgaagggtt ttgtaaaaga ctctctggat caggctgcaa cagatgagct 8520  
 ggtaaaagaa aaaccagaaa aaattataat ggccttattt agaacagttc agacaattgg 8580  
 taacccctcg agactaatat accacctgta tggggtttac taaaaaggtt gggaggccaa 8640  
 ggaactatct gagaggacag caggcagaaa ctatttcaca ttgataatgt ttgaagcctt 8700  
 cgagttatta gggatggact cacaagggaa aataaggaa cctgcgggaa attacatttt 8760  
 ggatttgata tacggcctac acaagcaaat caacagaggg ctgaagaaaa tgggtactggg 8820  
 gtggggccct gcacccctta gttgtgactg gacccctagt gacgagagga tcagattgcc 8880  
 aacagacaa ttatttgagg tagaaacagc gtgcccatgt ggctatcaga taagagcttt 8940  
 caaaaaatga ggtggcaaac ttaccaaaagt ggaggagagc gggcctttcc tatgtagaaa 9000  
 cagacctggt agggggaccag tcaactacag agtcaccaag tactacgtat acaacctcag 9060  
 agagataaaa ccagtagcaa agttggaaag acaggtagag cactactaca aagggtctac 9120  
 agcaaaaatt gactacagta aaggaaaaat gctcttgccc actgacaagt gggaggtgga 9180  
 actgtgtgtc ataaccaggt tagctaagag atataactgg gtcgggttca atgttgata 9240  
 cttaggtgac gagccaatc accgtgctct agtggagagg gactgtgcaa ctataacca 9300  
 aaacacagta cagtttctaa aaatgaagaa ggggtgtgag ttcacctatg acctgacct 9360  
 ctccaattct accaggctca tcgaactagt acacaggaac aatcttgaag agaaggaat 9420  
 acccacgct accgttcacca catggctagc ttacacctc agtgaagag acgtaggagc 9480  
 tataaaacca gtactaggag agagagtaat cccgcacct gtagtgtata tcaatttaca 9540  
 accagaggtg caagtgggaca cgtcagaggt tgggatcaca ataatttgaa gggaaacct 9600  
 gatgacaacg ggagtgacac ctgtcttgga aaaaagtagg cctgacgcca gcgacaacca 9660

aaactcgggtg aagatcgggtg tggatgaggg taattaccca gggcctggaa tacagacaca 9720  
 tacactaaca gaagaataac acaacaggga tgcgagggcc ttcatcatga tctcggggctc 9780  
 aaggaattcc atataaata gggcaagagc tgcatagaat ataatctgt acacaggaaa 9840  
 tgacccccagg gaataacgag acttgatggc tgcagggcgc atgttagtag tagcactgag 9900  
 ggatgtcgac cctgagctgt ctgaaatggt cgatttcaag gggacttttt tagataggga 9960  
 gggcctcgagg gctctaagtc tcgggcaacc taaccggaag caggtttacca aggaagctgt 10020  
 taggaatttg atagaacaga aaaaagatgt ggagatccct aactgggttg catcagatga 10080  
 cccagttatt ctggaagtg ccttaaaaaa tgataagtac tacttagtag gagatgttgg 10140  
 agagctaaaa gatcaagcta aagcacttgg gcccaggat cagacaagaa ttataaagaa 10200  
 ggtaggctca aggacgtatg ccatgaagct atctagctgg ttctcaagg catcaacaa 10260  
 acagatgagt ttaactccac tgtttgagga atgtgtgcta cggtgcccac ctgcaactaa 10320  
 gagcaataag gggcacatgg catcagctta ccaattggca cagggttaact gggagccct 10380  
 cgggttcggg gtgcacctag gtacaatacc agccagaagg gtgaagatag acccatatga 10440  
 agcttaacta aagttgaaag atttcataga agaagaagag aagaaacctt gggtaagaa 10500  
 tccagtcaga agagagcaca acaaatggat acttaaaaaa ataaggttct aggaaacct 10560  
 caacaccaag aaaaatgtca acccagggaa actatctgaa cagttggaca gggaggggag 10620  
 caagaggaac atctacaacc accagattgg tactataatg tcaagtgcag gcataaggct 10680  
 ggagaatttg ccaatagtga gggcccaaac cgacacaaaa accctttcatg aggcataag 10740  
 agataagata gacaagagt gaaaaccggca aaatccagaa ttgcacaaca aattgttgg 10800  
 gattttccac acgatagccc aaccacacct gaaacacacc tacggtgagg tgacgtggga 10860  
 gcaactctca gggggggtaa atagaaagg ggcagcaggc ttctctggaga agaagaacct 10920  
 cggagaagta ttggattcag aaagcacctt ggtagaacaa ttggtcaggg atctgaaggc 10980  
 cgggagaaag aaaaaatatt atgaaactgc aataccaaaa aatgagaaga gagatgtcag 11040  
 tggatcgagg caggcagggg accctggtggt tgagaagagg ccaagagtta tccaataccc 11100  
 tgaagccaag acaaggctag ccatcactaa ggtcatgtat aactgggtga aacagcagcc 11160  
 cggtgtgatt ccaggatatg aaggaaagac cccctgttct aacatcttgg ataaagttag 11220  
 aaaggaaatg gactcgttda atgagccagt ggcctgaagt tttagaccca aagcctggga 11280  
 cactcaagtg actagtaagg atctgcaact tattggagaa atccagaaat attactataa 11340  
 gaaggagtgc cacaaagtta ttgacaccat caccgaccac atgacagaa taccagttat 11400  
 aacagcagat ggtgaagtta atataagaaa tgggcagaga gggagcgccc agcagacac 11460  
 aagtgtcggc aacagcatgt taaatgtcct gaccaatgat tacggcttct gcgaaagcac 11520  
 aggggtaccg tacaagagtt tcaacagggt ggcagagat cagctctgtg gggatgatgg 11580  
 cttcttaata actgaaaaag ggttagggct gaaaatttgc acaaaagatg tgcagattct 11640  
 tcatgaagca ggcaaacctc agaagataac ggaaggggaa aagatgaaag ttgcctatag 11700  
 attttaggag atagagttct gttctcatac cccagtcctt gttaggtggt ccgacaacac 11760  
 cagtagtccac atggcccgga gagacaccgc tgtgatacta tcaaaagatg caataagatt 11820  
 ggattcaagt ggagagaggg gtaccacagc atatgaaaaa gcgggtagcct tcagtttctt 11880  
 gctgatgtat tctctggaacc cgctgtgttag gaggatttgc ctgttggtcc tttagcaaca 11940  
 gccagagaca gactgtgttg aacatgccac ttattattac aaaggtggtc taaaggggc 12000  
 ctataaagat gtaataggtc ggaatctaag tgaactgaag agaacaggct ttgagaaatt 12060  
 ggcaaatcta aacctaaagc tgtccacgtt ggggggtctg actaagcaca caagcaaaa 12120  
 aataattcag gactgtgttg ccaattggga agaagaggcc ctgagggcta taaagccga 12180  
 caggctgata tccagcaaaa ctggccactt atacatacct gataaaaggct ttacattaca 12240  
 aggaagagat tatgagcaac tgcagctaa aacagagaca aaccgggtca tgggggttgg 12300  
 gactgagaga gactggttag gtcccatagt caatctgctg ctgagaaggt tgaaaattct 12360  
 gctcatgacg gccctcgagg tcagcagctg agacaaaatg tatatatgtt aaataaatta 12420  
 atccatgtac atagtgtata taaatatagt tgggacccgt cacctcaaga agacgacag 12480  
 cccaacacgc acagctaacc agtagtcaag attacttacc tcaagataac actacaatta 12540

atgcacacag cacttttagct gatatgaggat acgccccgacg tctatagttg gactaggggaa 12600  
gacctataac agcccccccg gatctagagg agcatgggac gtcagggtggc acttttcggg 12660  
gaaatgtgct cggagccccct atttgtttat ttttctaata atgtatccgc 12720  
tcatgagaca ataaccctga taaatgtctc aataatatgt aaaaagggaag agtatgagta 12780  
ttcaacattt ccgtgttcgcc cttattccct tttttggggc attttgcctt cctgtttttg 12840  
ctcaccgaga aacgctgggtg aaagtataaag atgctgaaga tcagttgggt gcacgagttg 12900  
gttacatcga actggatctc aacagcggta agatccttga gagttttcgc cccgaagaac 12960  
gttttccaat gatgagcact tttaaagtct tgctatgttg cgcggtatta tcccgattg 13020  
acgcggcgga agagcaactc ggtcgccga tacactattc ttagaatgac ttggttgagt 13080  
actcaccagt cacagaaaag catcttacgg atggcatgac agtaagagaa ttatgcaagt 13140  
ctgccataac catgagtgat aacactgcgg ccaacttact tctgacaacg atcggaggac 13200  
cgaaggagct aacgcgtttt ttgcacaaca tgggggatca tgtaactcgc cttgatcggt 13260  
gggaaccgga gctgaatgaa gccataccaa acgacgagcg tgacaccacg atgcctgtag 13320  
caatggcaac aacgttgcgc aaactattaa ctggcgaaact acttactcta gcttcccgcc 13380  
aacaattaat agactgttct gaggcggata aagtgtcagg accactctgt cgctcgggcc 13440  
ttccggcttg ctggtttatt gctgataaat ctggagccgg tgagcgtggg tctcgcggtt 13500  
tcatttcgag actggggcca gatggttaagc cctcccgat ctgagttatc tacacgacgg 13560  
ggagtccagg aactatgttt gaacgaata gacagatcgc gcttactgtt gcctcactga 13620  
ttaagcattg gtaactgtca gaccaagtct actcataat acttttagatt gatttaaaac 13680  
ttcattttta atttataaag atctagggtga agatcctttt tgataatctc atgacaaaaa 13740  
tcccttaagc tgaatttttg ttccactgag cgtcagaccc ctgagaaaaa atcaaaaggat 13800  
cttcttgaga tctttttttt ctgcgcgtaa tctgtgtcct gcaaaaaaaa aaaccaccgc 13860  
taccagcggt ggtttgtttg ccggatcaag agctaccaac tctttttcgc aaggttaact 13920  
gcttcagcag agcgcagata ccaaatactg tcttctagt ttgacgctag ttaggccacc 13980  
acttcaagaa ctctgtagca ccgcctacat acctcgtctt gctaactcgt ttaccagtgg 14040  
ctgctgccag tggcgataag tcgtgtctta ccgggttgga ctcaagacga tagttaccgg 14100  
ataaggcgca cggctgcggc tgaacggggg gttcgtgcac ctacgccagg ttggagcgaa 14160  
cgacctacac cgaactgaga tacctacagc gtgagctatg agaaagcgct caaagatgca 14220  
ggggtaaaaa ctaaccgcac ctttacgcag aaggcatccg gcagttcaac agatcgggaa 14280  
gggtgcgatt tgcgtgagat gaaggtggag gaaggtgatg tcattctcgt gaagaagctc 14340  
gaccgtcttg gccgcgacac cgccgacatg atccaaactg taaaagagtt tgatgctcag 14400  
ggtgtagcgg ttccgtttat tgacgacggg atcagtaccg acggtgatat ggggcaaatg 14460  
gggttcacca tctgtcgcgc tgtggcacag cgtgaacgcc ggaggtcct agagcgcaac 14520  
aatgagggcc gacaggaagc aaagctgaaa ggaatcaaat ttggcccgag gcgtaccgtg 14580  
gacaggaacg tcgtgtgcag gcttcatcag aagggcactg gtgcaacgga aattgtctct 14640  
cagctcagta ttgcgcgtcc cagcgtttat aaaaattctg aagacgaaaag ggctcgtga 14700  
tacgcctatt tttataggtt aatgtcatga taataatggt ttcttagacg tcaggtggca 14760  
cttttcgggg aaatgtgcgc ggaaccctta ttgtttatt ttcttaataa cattcaataa 14820  
tgtattccgt catgacaaa taacctgat aaactcctta ataattatga aaaagggaag 14880  
gtatgagtat tcaacatttc cgtgtcgcgc ttattccctt ttttgcggca ttttgccttc 14940  
ctgtttttgc tcaccagaaa acgctggtga aagtaaaaga tgctgaagat cagttgggtg 15000  
cacgagtggt ttacatcgaa ctggtatcga acagcggtaa gatccttgag agttttcgcc 15060  
ccgaagaacg ttttccaatg atgagcactt ttaaagtctt gctatgtggc gcggtattat 15120  
cccgctgtga cgccggggca gagcaactcg tgcgcgcgat acactattct cagaatgact 15180  
tggttgagta ctaccactg acagaaaaag atcttacgga ttgcatgaca gtaagagaat 15240  
tatgcagtgc tgccataacc atgagtgata acactgcggc caacttactt ctgacaacga 15300  
tcggaggacc gaaggagcta accgcttttt tgacaacaat gggggatcat gtaactcgcc 15360  
ttgatcgttg ggaaccggag ctgaatgaag ccataccaaa cgacgacgct gacaccagca 15420

tgcctgcagc	aatggcaaca	acgttgcgca	aactattaac	tggcgaaacta	cttactctag	15480
cttcccggca	acaattaata	gactggatgg	aggcggataa	agttgcagga	ccacttctgc	15540
gctcggccct	tccggctggc	tggtttattg	ctgataaatc	tggagccggg	gagcgtgggt	15600
ctcgcgggat	cattgcagca	ctggggccag	atggtaaagcc	ctcccgtatc	gtagtattct	15660
acacgacggg	gagtcaggca	actatggatg	aacgaaatag	acagatcgct	gagataggtg	15720
cctcactgat	taagcattgg	taactgtcag	accaagttta	ctcatatata	ctttagattg	15780
atttaaaact	tcatttttaa	tttaaaagga	tctaggtgaa	gatccttttt	gataatctca	15840
tgacaaaaat	cccttaacgt	gagttttcgt	tccactgagc	gtcagacccc	ttaataagat	15900
gatcttcttg	agatcgtttt	ggtctgcgcg	taatctcttg	ctctgaaaac	gaaaaaacgg	15960
ccttgcaggg	cgggttttcg	aaggttctct	gagctaccaa	ctctttgaac	cgaggtaact	16020
ggcttgaggg	agcgcagtca	ccaaaacttg	tcctttcagt	ttagccttaa	ccggcgcatg	16080
acttcaagac	taactcctct	aaatcaatta	ccagtggctg	ctgccagtgg	tgcttttgca	16140
tgtctttccg	ggttggactc	aagacgatag	ttaccggata	aggcgcagcg	gtcggactga	16200
acgggggggt	cgtgcataca	gtccagcttg	gagcgaaactg	cttaccggga	actgagtgct	16260
aggcgtggaa	tgagacaaac	gcggccataa	cagcggaaatg	acaccggtaa	accgaaagcg	16320
aggaacagga	gagcgcacga	gggagccggc	agggggaaac	gcctgggtatc	tttatagtcc	16380
tgctgggttt	cgccaccact	gatttgagcg	tcagatttcg	tgatgcttgt	cagggggggc	16440
gagcctatgg	aaaaacggct	ttgccgcggc	cctctcactt	ccctgttaag	tatcttctcg	16500
gcctcttcca	ggaaatctcc	gccccgttcg	taagccattt	ccgctcgccg	cagtogaacg	16560
accgagcgta	gcgagtcagt	gagcggaggaa	gcggaatata	tcctgtatca	catattctgc	16620
tgacgcaccg	gtgcagcctt	ttttctcctg	ccacatgaag	cacttcactg	acaccctcat	16680
cagtgccaac	atagtaagcc	agtatacact	ccgctagcgc	cacgcgtatc	gatgaattcg	16740
ttaatacgac	tcactata					16758